Bright Nickel System with Super Levelling 786

(Bright nickel process for jig articles and barrel for mirror bright finish & good ductility)

1. Make-up (for 100 ltrs.)

Nickel Sulphate	30 Kgs
Nickel Chloride	6 Kgs
Boric acid	4-5 Kgs
Make-up solution 797M	1.0-1.2 Ltrs
Maintenance Brightener 786RL	0.025-0.04 Ltrs
Wetting agent 787W	0.2-0.4 Ltrs

Air agitated nickel baths require an addition of.

Wetting agent 787WA	0.2-0.3 Ltrs

Temperature:	55-62ºC
pH-value:	4-4.5
Current Density	2-6 A/dm^2
Filtration	Continuously 2-5 bath volume per hour
Anode: Cathode	2: 1

2. Make-up solution 797M

The make-up solution is used as primary brightener and it improves the ductility of the nickel deposits. At the same time, additive 797M intensifies the brightness by increasing the throwing power over the whole current density range.

Consumption of make-up solution depending on quality standard and drag-out:

797M /1000 Ah: 200-300 ml

Hard, spotty and hazy deposits, due to too little dosage of make-up solution, can always be eliminated by adding this solution.

3. Maintenance Brightener 786RL

This additive produces mirror bright finish together with a high leveling effect. The consumption rate of this agent is;

786RL /1000 Ah: 150-225 ml

The optimum dosage is determined during a hull cell test. An over-dosage of brightener 786RL is recognized if the hull cell sheet shows an excessive leveling effect along with lack of throwing power.

4. Leveler 786L

Leveler can be added for very high leveling requirements. The addition of leveler 786L in quantities of **0.05-0.1 ml/ltr.**

Improves the levelling effect of the deposit especially in medium and high current density area. The maximum dosage;

786L /1000 Ah: 50-75 ml

5. Additive 1090

This agent removes foreign metal and also improves the brightness effect over the whole range of current density. It is added in quantities of **0.1 – 2 ml/ltr (max)**. If a contamination with foreign metal might be the reason for spotty finishes, this additive should be used for removal.

Note: A dosage of more than 2 ml/ltr. should be avoided.

In case of an over-dosage of nickel brightener, forming pitting in the area of high current densities and not giving sufficient throwing power, an addition of **0.2 – 0.5 ml/ltr** of additive 1090 will solve the problem immediately. Also, in cases of having passive nickel layers which are causing problems (white washing) during chrome plating, an addition of 1090 will soon give satisfactory results.

6. General remarks

An over-dosage of brightener or leveler, leading to problems – strong inhibition and spotty deposits – can be eliminated in most of the cases by reducing the pH-value to 3.5 or by dummy plating with a low current density.

All data given herein are based on normal operating conditions. We guarantee a constant good quality of our products. We are, however, not liable for any application beyond our influence.

Analysis

Sample Preparation

Take the sample at a homogeneously mixed position and let it cool down to room temperature. If dull, allow to settle and decant or filter.

- **Nickel**

Reagents: 0.1 N EDTA, concentrated ammonia solution

Indicator: Murexide

Process: Pipette 1 ml bath solution into a 250 ml Erlenmeyer beaker, add approx. 100 ml deionized water, 12 ml ammonia, and a spatula tip of indicator. Titrate with 0.1 N EDTA from yellow to violet.

Calculation: Consumption in ml x 5.87 = g/l nickel

Correction: To increase 1 g/l =addition of: 4.8 g/l nickel sulfate
or: 4.1g/l nickel chloride

- **Chloride**

Reagents: 0.1 N silver nitrate solution, indicator: 5 % potassium chromate solution or 5 g K2Cr2O7 + 95 g NaHCO3

Process: Pipette 1 ml bath solution into a 250 ml Erlenmeyer beaker, add approx. 100 ml deionized water, and some indicator. Titrate with 0.1 N silver nitrate from yellow to brown.

Calculation: Consumption in ml x 3.54 = g/l chloride

Correction: To increase 1 g/l =addition of: 3.0 ml/l HCl (30%)
or: 3.4 g/l nickel chloride·6 aq

- **Boric Acid**

Reagents: 0.1 N NaOH, EDTA sodium salt, mannitol, 15 % NaOH solution

Process: Pipette 10 ml bath solution into a 250 ml Erlenmeyer beaker, add approx. 50 ml deionized water, and 2-4 g EDTA salt. Adjust the pH to 7.9 with 15 % NaOH solution and add 2 g mannitol to the **clear** solution. Titrate with 0.1 N NaOH to a pH of 7.9 again.

Calculation: Consumption in ml x 0.618 = g/l boric acid

Our Guarantee

Our guarantee extends to the continuous quality of our products as they leave our factory and not to their usage in the field. Our technical service will be pleased to answer any question you may have concerning operation and use of our products:

Mob: +92(333)-4219023, **Tel.:** +92(42)-36521245 -46,
e-mail: info@primechemicals.com.pk

Basharat Javaid Awan
Prime Chemicals - Pakistan